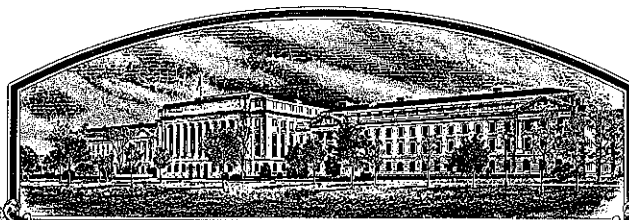


No.

9500085



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

*Western Plant Breeders, Inc.*

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Merlin'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of August in the year of our Lord one thousand nine hundred and ninety-five.*

Attest:

*[Signature]*  
Acting Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*[Signature]*  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(INSTRUCTIONS ON REVERSE)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Western Plant Breeders, Inc.</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. <b>BZ 489-29</b>	3. VARIETY NAME <b>Merlin</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>8111 Timberline Drive Bozeman, Montana 59715</b>		5. PHONE (include area code) <b>(406) 587-1218</b>	FOR OFFICIAL USE ONLY VPPO NUMBER <b>9500085</b>
6. GENUS AND SPECIES NAME <b>Hordeum vulgare</b>		7. FAMILY NAME (Botanical) <b>Gramineae</b>	
8. CROP KIND NAME (Common Name) <b>Barley</b>		9. DATE OF DETERMINATION <b>May 1, 1990</b>	FILING Date <b>Mar. 30, 1995</b> Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>		11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Arizona</b>	12. DATE OF INCORPORATION <b>May 24, 1990</b>
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS <b>Dr. Dale R. Clark Western Plant Breeders, Inc. 8111 Timberline Drive Bozeman, MT 59715</b>			14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse) a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of Variety e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership f. <input checked="" type="checkbox"/> Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office <b>March 29, 1995</b> g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,325) made payable to "Treasurer of the United States"

PHONE (include area code): **(406) 587-1218**

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (If "YES," answer items 16 and 17 below) <input checked="" type="checkbox"/> NO (If "NO," skip to item 18 below)	
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S. <input type="checkbox"/> YES (If "YES," through <input type="checkbox"/> Plant Variety Protection Act <input type="checkbox"/> Patent Act. Give date: _____). <input checked="" type="checkbox"/> NO	
19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) <b>March 15, 1995</b> <input type="checkbox"/> NO	
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.	

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] <b>Dale R. Clark</b>	CAPACITY OR TITLE <b>Barley &amp; Wheat Breeder</b>	DATE <b>March 29, 1995</b>
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

## MERLIN

### 14a. Origin and Breeding History

**MERLIN** is a two-rowed, hulless, waxy, spring barley that was selected by Western Plant Breeders (WPB) from a male-sterile facilitated, recurrent selection population (MSFRSP) for short strawed, two-rowed, waxy, hulless barley. The short, two-rowed population was developed by crossing WPB's two-rowed MSFRSP with a short two-rowed line PH 582-8 in 1982. (PH 582-8 was a selection from the cross of WPB short six-rowed population by various disease resistant lines, including two-rowed barley's.) Short, two-rowed, male sterile F<sub>2</sub> plants from the 1982 cross were intercrossed in 1983. Several short, F<sub>2</sub> male sterile plants from this intercross were crossed with two lines, EK-8 (an Erbet x Klages selection) and TR-451 (Klages x S72204 selection) in 1984. Short, F<sub>2</sub> male sterile plants in this population were intercrossed in 1985. Short F<sub>2</sub> male-sterile plants from this intercross were crossed with WPB's two-rowed, waxy hulless line BZ 585-85 (WestBred Waxbar x TR-451) in 1986. Spikes were selected from short, hulless, two-rowed F<sub>2</sub> plants in 1987 at Phoenix, AZ and threshed in bulk. The F<sub>3</sub> seed was thin planted at Blackfoot, Idaho in 1988 and single F<sub>3</sub> plants were selected at harvest. Seed of these plants were planted near Phoenix in the fall of 1988 in 5' x 20' plots. Five F<sub>4</sub> plants were selected from each desirable plot in May of 1989 and F<sub>5</sub> seed from these were planted in 5' x 20' plots near Bozeman, MT in May, 1989. One such plot was selected, bulk harvested, and given the experimental number, BZ 489-29 in September of 1989. Successive F<sub>6</sub>, F<sub>7</sub>, F<sub>8</sub>, F<sub>9</sub> and F<sub>10</sub> generation seed from this plot were yield tested in 1990 through 1994 in Montana, Idaho, and Washington.

F<sub>6</sub> seed was planted near Phoenix in the fall of 1989 for purification. Fifteen F<sub>6</sub> plants were selected in May of 1990 and F<sub>7</sub> seed from these plants were planted in individual 5' x 20' plots near Bozeman in May of 1990. Uniform plots were bulk harvested. F<sub>8</sub> seed from these plots were planted in 1991 near Bozeman on

## MERLIN

approximately one eighth of an acre. F9 seed from this increase were harvested and designated "Breeders" Seed. This F9 seed was again increased as Breeders seed near Bozeman in 1992 and given the name "Merlin". This Breeders seed was planted in May, 1993 and the subsequent production was harvested in September, 1993 as Foundation seed. The Foundation seed was planted in May, 1994 and harvested as Registered and Certified seed in September, 1994. The first sale of Certified seed to the general public will be in the spring of 1995.

Merlin is a stable and uniform variety in agronomic appearance and performance across several generations and growing conditions. No variants are known to occur at this time. Agronomic data to support this stability are presented in Tables 1 through 7.

### **14b. Novelty Statement**

Merlin is most similar to WestBred Waxbar. However, Merlin has long awns while WestBred Waxbar has short awns. Merlin is a semidwarf and WestBred Waxbar is a standard height variety (Merlin is approximately 19 cm shorter than WestBred Waxbar). Also, the spike of Merlin is coated with a wax coating while the spike of WestBred Waxbar is glossy.

The above comparisons, along with the complete objective description (14c.), show Merlin to be a novel variety of spring barley.

OBJECTIVE DESCRIPTION OF VARIETY  
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

8111 Timberline Drive  
Bozeman, MT 59715

FOR OFFICIAL USE ONLY

PVPO NUMBER

9500085

VARIETY NAME OR TEMPORARY  
DESIGNATION

Merlin

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (i.e.  or ) when number is either 99 or less or 9 or less.

## 1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER  Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE  
3 = ERECT

## 2. MATURITY (50% Flowering):

1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than .....  } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON  
 No. of days Later than .....  } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = klages

## 3. PLANT HEIGHT (From soil level to top of head):

1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

Cm. Shorter than .....  } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON  
 Cm. Taller than .....  } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN x = none listed

## 4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm.  Anthocyanin: 1 = ABSENT 2 = PRESENT  
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground) Skin is waxy appearance

Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN  Shape of Neck: 1 = STRAIGHT 2 = SNAKY  
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

## 5. LEAF:

Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT  Position of flag leaf (at boot stage): 1 = DROOPING  
2 = UPRIGHT

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY

MM. WIDTH (First leaf below flag leaf)

CM. LENGTH (First leaf below flag leaf)

Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

## 6. HEAD:

Type: 1 = TWO-ROWED 2 = SIX-ROWED

Density: 1 = LAX 2 = ERECT (Not dense)  
3 = ERECT (Dense)

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE  
4 = OTHER (Specify)

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY

Lateral Kernels Overlap: 1 = NONE 2 = AT TIP  
3 = 1/4 - 1/2 OF HEAD

Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED

## 7. GLUME:

Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA  
3 = MORE THAN 1/2 OF LEMMA

Hairs: 1 = NONE 2 = SHORT 3 = LONG

Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES  
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

## 8. LEMMA:

☐ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS  
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)  
 5 = LONG (longer than spike) 6 = HOODED

☐ 1 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH rough at the tip

☐ 1 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☐ 1 Hair: 1 = ABSENT 2 = PRESENT

☐ 1 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE ☐ 1 Rachilla Hairs: 1 = SHORT 2 = LONG

## 9. STIGMA:

☐ 1 Hairs: 1 = FEW 2 = MANY

## 10. SEED:

☐ 1 Type: 1 = NAKED 2 = COVERED ☐ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

☐ 2 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)  
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

☐ 1 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

☐ 1 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

☐ 0 ☐ 2 PERCENT ABORTIVE

☐ 4 ☐ 5 GMS. PER 1000 SEEDS

## 11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

<input type="checkbox"/> 0 SEPTORIA	<input type="checkbox"/> 0 NET BLOTCH	<input type="checkbox"/> 0 SPOT BLOTCH	<input type="checkbox"/> 1 POWDERY MILDEW
<input type="checkbox"/> 0 LOOSE SMUT	<input type="checkbox"/> 0 BACTERIAL BLIGHT	<input type="checkbox"/> 0 COVERED SMUT	<input type="checkbox"/> 0 FALSE LOOSE SMUT
<input type="checkbox"/> 1 STEM RUST	<input type="checkbox"/> 0 LEAF RUST	<input type="checkbox"/> 0 SCAB	<input type="checkbox"/> 1 SCALD
<input type="checkbox"/> 0 AY	<input type="checkbox"/> 0 BSMV	<input type="checkbox"/> 0 BYDV	<input type="checkbox"/> 1 OTHER (Specify) Strip rust

## 12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

<input type="checkbox"/> 0 GREEN BUG	<input type="checkbox"/> 0 ENGLISH GRAIN APHID	<input type="checkbox"/> 0 CHINCH BUG	<input type="checkbox"/> 0 ARMYWORM
<input type="checkbox"/> 0 GRASS HOPPERS	<input type="checkbox"/> 0 CERIAL LEAF BETTLE	<input type="checkbox"/> 0 OTHER (Specify)	
HESSIAN FLY RACES		<input type="checkbox"/> 0 GP	<input type="checkbox"/> 0 A
		<input type="checkbox"/> 0 B	<input type="checkbox"/> 0 C
		<input type="checkbox"/> 0 D	<input type="checkbox"/> 0 E
		<input type="checkbox"/> 0 F	<input type="checkbox"/> 0 G

## 13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 0 DDT ☐ 0 OTHER (Specify)

## 14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	WestBred Waxbar	Seed size	WestBred Waxbar
Leaf size	WestBred Waxbar	Coleoptile elongation	WestBred Waxbar
Leaf color	WestBred Waxbar	Seedling pigmentation	WestBred Waxbar
Leaf carriage	WestBred Waxbar		WestBred Waxbar

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

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## MERLIN

### **14c. Objective Description** (see pages 4 and 5)

### **14d. Additional Description**

Merlin , like WestBred Waxbar, is considered a "low amylose" or "waxy" endosperm variety. The starch composition of the endosperm is mostly amylopectin starch with very little (< 5%) amylose starch. Therefore, the endosperm does not stain blue when Iodine Potassium Iodide ( $I_2KI$ ) is added.

### **14e. Statement of Ownership**

'Merlin', the variety for which Plant Variety Protection is hereby sought, was developed by Dr. Dale R. Clark, an employee of Western Plant Breeders, Inc.. All rights to any invention, discovery, or development made by the employee while employed by Western Plant Breeders, Inc. were assigned by Western Plant Breeders, Inc. with no rights of any kind pertaining to 'Merlin' are retained by the employees.

**M E R L I N**

Table 1. Heading date (from Jan. 1) of Merlin compared to WestBred Waxbar in Western Plant Breeders, Inc. trials at Bozeman, MT from 1990 to 1994.

	<u>Merlin</u>	<u>WestBred Waxbar</u>
1990	186	190
1991	192	193
1992	174	182
1994	<u>182</u>	<u>184</u>
mean	183.5	187.25



## MERLIN

Table 2. Agronomic data comparing Merlin to WestBred Waxbar in Western Plant Breeders, Inc trials from 1990 to 1994.

<u>Location</u>	<u>Merlin</u>			<u>WestBred Waxbar</u>		
	<u>Plt. Ht. inches</u>	<u>Test Wt. lbs/ac</u>	<u>Yield lbs/ac</u>	<u>Plt. Ht. inches</u>	<u>Test Wt. lbs/ac</u>	<u>Yield lbs/ac</u>
1990 Bozeman,MT (irr)	23	57	6431	32	53	4469
Conrad,MT #1 (dry)	20	53	3052	27	50	2671
Conrad,MT #2 (dry)	19	55	2398	24	54	2236
Denton,MT (dry)	20	49	2180	25	49	1744
1991 Bozeman,MT (irr)	33	55	5758	37	54	4174
Conrad,MT #1 (dry)	27	55	2963	37	54	2498
Conrad,MT #2 (dry)	23	57	4261	37	59	3893
Denton,MT (dry)	19	58	2687	28	47	2183
1992 Bozeman,MT (irr)	24	55	4833	29	51	3905
1994 Bozeman,MT (irr)	24	54	6140	33	53	4810
Conrad,MT #1 (dry)	21	59	3055	26	54	2680
Conrad,MT #2 (dry)	<u>22</u>	<u>58</u>	<u>3731</u>	<u>28</u>	<u>53</u>	<u>3538</u>
mean	22.9	55.4	3957	30.3	52.6	3233

**MERLIN**

Table 3. Agronomic data comparing Merlin and WestBred Waxbar in USDA trials at Aberdeen, Idaho in 1994.

	<u>Heading Date from Jan 1</u>	<u>Plt.Ht inches</u>	<u>Test Wt. lbs/bu</u>	<u>Yield bu/ac</u>
Merlin	181	23	53.2	124
W.B.Waxbar	176	39	56.8	135

## MERLIN

Table 4. Heading date (from Jan. 1) of Merlin and check varieties in Montana State Univ. spring barley trials.

<u>Locations</u>	<u>Merlin</u>		<u>Baronesse</u>		<u>Gallatin</u>	
	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>
<b>Dryland</b>						
Havre		193		191		175
Sidney	171	171	173	166	170	164
Moccasin	174	179	171	176	170	174
Huntley	162	170	162	168	159	167
Conrad		182		179		173
Bozeman	165	173	165	173	165	170
<b>Irrigated</b>						
Kalispell	164	178	160	175	158	176
Sidney	174	169	175	167	172	164
Huntley	162	167	161	165	160	163
Bozeman	<u>171</u>	<u>176</u>	<u>171</u>	<u>174</u>	<u>170</u>	<u>172</u>
mean	167.9	175.8	167.3	173.4	165.5	169.8

## MERLIN

Table 5. Plant height in inches of Merlin and check varieties in Montana State Univ. spring barley trials.

<u>Locations</u>	<u>Merlin</u>		<u>Baronesse</u>		<u>Gallatin</u>	
	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>
<b>Dryland</b>						
Havre		18.2		23.6		28.6
Sidney	21.5	15.8	27.5	23.0	28.8	27.2
Moccasin	22.8	21.0	29.9	23.2	31.4	25.7
Huntley	25.0	27.0	31.0	28.0	34.5	31.5
Conrad		22.0		30.0		35.0
Bozeman	23.9	25.1	27.9	30.2	28.4	32.5
<b>Irrigated</b>						
Conrad		25.0		27.0		34.0
Kalispell	19.0	19.4	24.9	26.4	26.7	34.5
Sidney	25.0	22.9	34.6	30.0	35.8	33.5
Huntley	26.0	28.0	35.5	28.0	39.5	31.5
Bozeman	<u>27.5</u>	<u>26.6</u>	<u>32.9</u>	<u>32.0</u>	<u>35.1</u>	<u>34.0</u>
mean	23.8	22.8	30.5	27.4	32.5	31.6

# MERLIN

Table 6. Test weight in pounds per bushel of Merlin and check varieties in Montana State Univ. spring barley trials.

<u>Locations</u>	<u>Merlin</u>		<u>Baronesse</u>		<u>Gallatin</u>	
	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>
Dryland						
Havre		42.5		45.4		46.6
Sidney	60.7	59.6	55.5	53.5	54.3	53.0
Moccasin	58.5	59.0	53.2	51.5	53.8	51.2
Huntley	55.9	46.3	49.9	45.9	51.8	46.3
Conrad		50.7		50.0		52.4
Bozeman	60.6	57.3	55.8	53.5	55.5	54.8
Irrigated						
Conrad		58.7		54.7		54.7
Kalispell	55.5	54.1	51.6	52.8	52.2	52.9
Sidney	58.2	59.1	51.3	54.3	51.3	53.8
Huntley	54.4	54.9	50.6	49.2	51.5	50.7
Bozeman	<u>60.8</u>	<u>59.4</u>	<u>56.4</u>	<u>54.1</u>	<u>55.5</u>	<u>55.4</u>
mean	58.1	54.7	53.0	51.4	53.2	52.0

# MERLIN

Table 7. Yield in bushels per acre of Merlin and check varieties in Montana State Univ. spring barley trials.

<u>Locations</u>	<u>Merlin</u>		<u>Baronesse</u>		<u>Gallatin</u>	
	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>	<u>92</u>	<u>94</u>
Dryland						
Havre		57.7		68.8		65.2
Sidney	86.8	28.2	105.7	46.2	93.9	47.6
Moccasin	73.2	46.6	87.9	53.0	83.4	47.9
Huntley	113.2	45.3	123.9	57.3	125.0	54.9
Conrad		71.8		92.3		93.0
Bozeman	114.3	104.0	133.7	121.8	109.0	109.9
Irrigated						
Conrad		78.4		92.9		87.1
Kalispell	85.9	62.5	123.8	92.0	108.3	96.5
Sidney	125.4	69.0	151.6	99.6	116.2	101.3
Huntley	126.4	84.7	126.2	124.5	129.6	97.5
Bozeman	<u>141.6</u>	<u>138.3</u>	<u>160.3</u>	<u>137.7</u>	<u>137.6</u>	<u>123.4</u>
mean	108.4	71.5	126.6	89.6	112.9	84.0

"Merlin"

